**Moment of Inertia (rotational inertia)**

**Rotational Motion of Mass**When mass is accelerated in a straight line motion, the equation for force is

 When mass is accelerated in angular motion, the equation for torque is 

* **** is called the moment of inertia
* ****is the angular acceleration
* **** is the angular equivalent of in the linear equation.
* The major difference is that with rotational inertia, it is the distribution of the mass that determines****, not just the mass.

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| --- | --- |
| Moment-of-Inertia | A mass  at the end of a weightless rod has an  value of   |
| Moment-of-Inertia | For a thin rod of length(R), about an axis through one end, and perpendicular to the axis of the rod, the Moment-of-inertia is  |
| Moment-of-Inertia | For a thin rod of length (R), about an axis through the center, and perpendicular to the rod’s axis, the Moment-of-inertia is  |
| Moment-of-Inertia | The Moment-of-inertia(1 cm) of a body with respect to an axis passing through the center of mass is related in a simple way to the moment of inertiawith respect to another parallel axis:  |

With these equations, we can calculate the Moment-of-inertia for a golf club